TTCE-K720 RF Card Dispenser User Manual

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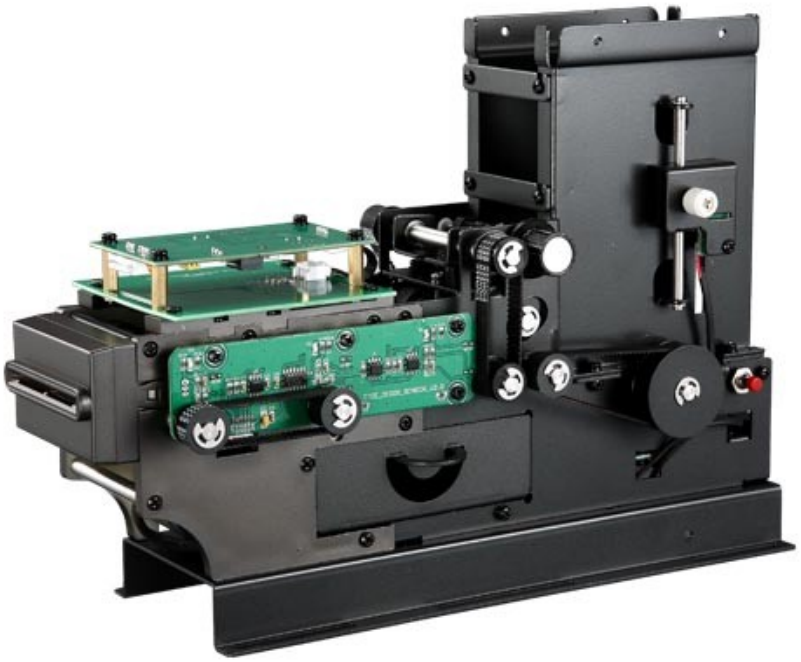

Reference:

(1)RFID card dispenser

(2)Able to read/write RF ID Card

(3) Few card Alert: 7~50pcs（0.76mm thick，Preset qty is 15pcs）

(3)OEM accept

Application :

(1) Parking lot management system

(2) Automatic vending machine system

(3) Telecom and electric power business card issue

(4) Park ticket vending system

(5) Card initialization issue and sort

(6) Subway or public transport card issue

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I Brief Introduction

This product adopts industrial design, good resistance to abrasion and corrosion, fit for high or low temperature and dusty environments. It has multiple card stay position , and channel is plastic material. Reserves card reading module install position.Simulation manpower friction card issuing makes most deformed card recognized. Active stacker installation space can let you manage cards more effective. Six shifts card space adjustment is our patented technology used for issuing cards with different thickness, and CNC precision ensures absolute unanimity of card space. Support Mifare 1 standard card read,write,issue.

II Technical data

Subject	Content
Operation power	Dispenser :24VDC (Max current 2A, static current 0.1A)
	RFID module: 12VDC(Max current ,0.1A,static current:0.04A)
Operation temperature	-20 ℃ to 85 ℃
Operation humidity	30-90% （RH）
Interface	RS232
Card stay position	Multiple card stay position control
Operation condition	Install in the cabinet
RF card type	ISO14443 Type A/B
Card size	Width: 54 ± 0.5 mm Length：85 ± 0.5 mm Thickness： 0.2 – 2.0mm Adjustable Card material：paper card or polyester card
N.W	2.0Kg（Include card holder）
Stacker capacity	150pcs standard cards based on the thickness of 0.76 mm
Few card Alert	7~50pcs（0.76mm thick，Preset qty is 15pcs）
Install dimension	Refer to product structure drawing

III Main functions

1) Card empty and pre-empty detect function and sound alarm

2) Capturing card through a special card retrieving box.

3) Preventing dispensing double card simultaneously: Up gear and down gear swirl in different direction, and friction dispensing card can avoid dispensing double card at the same time, even suitable to some distorted cards.

4）Can issue all cards in the stacker in normal condition. Most distorted cards can be issued by using card holder.

5）Especially suitable for issuing thin paper cards, and card dispenser can also be set according to customers' requirement.

6）Card thickness adjustment is convenient, precise and easy to operate.

7) RS232 control interface. may make multiple machine communication.

8）Pre-dispensing function accelerates the speed and ensures the continuous card issuing.

9）Read/write mifare 1 standard card.

IV Interface (RS232interface)

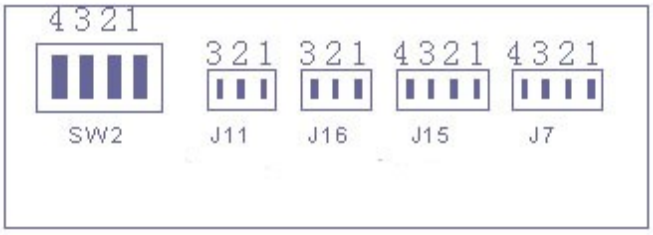
4．1 Power interface

POWER-ZIP （J7、J15）		
PIN-NO	Input	Requirements
2、3 pin（middle）[2 Blackwire]	GND	Connect to ground
1、4 pin（sides）[2 red wire]	VCC	DC24V Above 1.5A current

4．2 RS232 interface

RS232-ZIP （J16、J11）		
PIN-NO	Input	Requirements
1 pin（Right）	GND	Connect to ground
2 pin（Middle）	RXD	RS232 level
3 pin（Left）	TXD	RS232 level

4．3 Interface drawing



Note：

（1）RS232-ZIP: two same RS 232 communication interface, one is used to connect with extended machine
（2）SW2: switch button used to allot address of card dispenser. Setting method please refer to card machine address setting
(3)POWER-ZIP: two POWER-ZIP，one is used for input and the other is used for output, which is optional.

4.4 Card machine address setting

Switch button				Relative address
4	3	2	1	
ON	ON	ON	ON	‘00’
ON	ON	ON	OFF	‘01’
ON	ON	OFF	ON	‘02’
ON	ON	OFF	OFF	‘03’
ON	OFF	ON	ON	‘04’
ON	OFF	ON	OFF	‘05’
ON	OFF	OFF	ON	‘06’
ON	OFF	OFF	OFF	‘07’
OFF	ON	ON	ON	‘08’
OFF	ON	ON	OFF	‘09’
OFF	ON	OFF	ON	‘10’
OFF	ON	OFF	OFF	‘11’
OFF	OFF	ON	ON	‘12’
OFF	OFF	ON	OFF	‘13’
OFF	OFF	OFF	ON	‘14’
OFF	OFF	OFF	OFF	‘15’

V RS232 multi-machine communication

5.1 Communication format

Baud rate（BPS: 9600 BPS

Communication Type: asynchronous communication

Transmission type: half duplex

5.2 Data frame structure

Start bit: 1 bit

Data bit: 8 bit

Check bit: None

Stop bit: 1 bit

5.3 Communication control character

S T X: 0X02 start character of data packet

E T X: 0x03 end character of data packet

A C K: 0x06 active response character of card dispenser

N A K: 0x15 negative response character of card dispenser

E N Q: 0x05 host machine response character

VI Communication protocol

6.1 Command data packet structure

Data packet structure that host machine sends to card dispenser.（Command data packet, 7 bytes altogether）

S T X	card machine address high byte	card machine address low byte	Command high byte	Command low byte	E T X	B C C

Note:

（1）BCC block check character. Calculating method as below

BCC=STX^card machine address high byte ^ card machine address low byte ^ command high byte ^ command low byte ^ETX. "^"symbol means Xor。

（2）Data packet is sent with A S C I I code character.

（3）Command please refer to command sheet

（4）Address effective value only allows to have below data. Data in the table sheet is character type.

"00"	"01"	"02"	"03"	"04"	"05"	"06"	"07"
"08"	"09"	"10"	"11"	"12"	"13"	"14"	"15"

Data packet structure that card dispenser responses to check command from host machine (Response data packet, 11 bytes altogether)

S T X	card machine address（2 bytes）	'S'	'F'	Operation status response bytes（3～4 bytes）	E T X	B C C

Note：

（1）Operation status response byte please refer to operation status response data sheet.

（2）Card dispenser status response byte please refer to card dispenser status response data sheet.

Command sheet

Command name	code
Dispense card (to position of taking card)	'DC'（0x44 0x43）
Check	'RF'（0x52 0x46）
Check	'AP'（0x41 0x50）

Capture card	‘CP’（0x43 0x50）
Reset	‘RS’（0x52 0x53）
Get version	‘GV’（0x52 0x53）
Buffer enable	‘BE’ (0x47 0x56)
Buffer disable	‘BD’ (0x42 0x44)
Set baud rate	‘CS0’ (0x43 0x53 0X30) 1200 ‘CS1’(0x43 0x53 0X31) 2400 ‘CS2’(0x43 0x53 0X32) 4800 ‘CS3’(0x43 0x53 0X33) 9600 ‘CS4’(0x43 0x53 0X34) 19200 ‘CS5’(0x43 0x53 0X35) 38400

Note: data in the bracket is relative Hexadecimal value of ASCII character.

Extended command sheet

Command name	Code
Dispense card at sensor 2 position	‘FC6’（0x46 0x43 0x36）
Get version	‘GV’ (0x47 0x56)
Dispense card at read card position	‘FC7’（0x46 0x43 0x37）
Dispense card at hold card position	‘FC4’ （0x46 0x43 0x34）
Dispense card out of card mouth	‘FC0’ （0x46 0x43 0x30)

Note: data in the bracket is relative Hexadecimal value of ASCII character.

Machine status sheet

Hexadecimal	Binary	Status
0x38 0x30 0x30 0x30	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Keep
0x34 0x30 0x30 0x30	0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Command cannot execute
0x32 0x30 0x30 0x30	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Preparing card fails
0x31 0x30 0x30 0x30	0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	Preparing card
0x30 0x38 0x30 0x30	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	Dispensing card
0x30 0x34 0x30 0x30	0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	Capturing card
0x30 0x32 0x30 0x30	0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	Dispense card error
0x30 0x31 0x30 0x30	0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0	Capture card error
0x30 0x30 0x38 0x30	0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0	No captured card

0x30 0x30 0x34 0x30	0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0	Card overlapped
0x30 0x30 0x32 0x30	0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0	Card jammed
0x30 0x30 0x31 0x30	0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0	Card pre-empty
0x30 0x30 0x30 0x38	0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0	Card empty
0x30 0x30 0x30 0x34	0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0	Card at sensor 3 position
0x30 0x30 0x30 0x32	0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0	Card at sensor2 position
0x30 0x30 0x30 0x31	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	Card at sensor 1 position

Note:（1）Sensor 3 is card mouth position sensor，sensor 2 is read card position sensor, sensor 1 is pre-dispensing card sensor.

(2）Each position in status sheet is related to one status. If several statuses exist at the same time, then they can be stacked.

e.g, card stay at sensor 1 and sensor 2 two position, then the last byte of returned status is 0x30 + 0x03 = 0x33.

6.2 Communication process

（1）If card dispenser receives data packet from host machine, it will make data check. If correct, it will return back positive response ACK, but card dispenser will not execute command at this time until wait ENQ from main controller again, and will revise status register.

（2）After main machine receives ACK, it will send ENQ again and send check command continuously(at least 200ms interval) to get status of card dispenser. If receives negative response NAK, it means that there are error when card dispenser receives data. If main machine need to be connected again, command packet must be resent. If resending command packet many times, error still occurs. It is suggested that main machine should alert user to check communication circuit.

（3）After completing one command, it will not execute another command untill one process is completed or receive command overtime.

（4）Card dispenser is completely passive equipment, so it will not send any data to host machine unless it receives command from host machine.

6.3 Upper Host machine and card dispenser communication procedure

1）Dispense card command packet and procedure drawing

STX	Card machine address（2 bytes）	‘D’(0x44)	‘C’(0x43)	ETX	BCC

Card dispensing data

Note: STX： 0x02 start character

Card machine address：ADDR_H + ADDR_L

Character D： 0x44 Dispense card command high byte
Character C： 0x4C Dispense card command low byte

ETX： 0x03 end character
BCC： 0xxx block check between STX—ETX

Card dispensing procedure:

Host machine Card machine

Check command →

← ACK+ADDR

ENQ+ADDR →

← Return back to operation status and card stacker status

Card dispensing command →
（There are cards in the card stacker, and there are no error with card machine. Otherwise continue to check）

← ACK+ADDR

ENQ+ADDR →

Execute dispensing card action and revise status

Check status of card machine continuously →

Procedure：a) Dispensing card command can not be executed unless there are no error with card machine and there are cards in the card stacker before dispensing card
b) Before one command process is completed, next command cannot be executed.
c) There are at least 200ms interval between each check command.

（2）Host machine check command packet and procedure

STX	Card machine address （2 bytes）	‘R’(0x52)	‘F’(0x46)	ETX	BCC

Note：
STX： 0x02 Start character
Card machine address ： ADDR_H + ADDR_L
Character R： 0x52 Check command high bytes
Character F： 0x46 Check command low bytes
ETX： 0x03 end character
BCC： 0xXX block check between STX—ETX.

Check procedure:

Host machine Card machine

Check command →

ENQ+ADDR ⟶

⟵ Return back into operation status and card stacker.

（If continue to check, please delay 200ms）

（3）Card machine return back into RF or AP command packet

S T X	Card machine address（2 bytes）	‘S’	‘F’	Status code （RF command 3 bytes） Status code（AP command 4 bytes）	E T X	B C C

Note：

STX： 0x02 start character

Card machine address：ADDR_H + ADDR_L

Character S： 0x53 Check command high bytes

Character F： 0x46 Check command low bytes

3-4 bytes status code ： Please refer to machine status code sheet (AP return 4 bytes，RF return 3 bytes)

ETX： 0x03 end character

BCC： 0xXX block check between STX—ETX

（4）Extend control command packet （Dispense card to read card position）

STX	Card machine address（2 bytes）	‘F’(0x46)	‘C’(0x43)	Specify position of dispensing card	ETX	BCC

Process explanation ： Process is same as dispense card command.

VII Card thickness adjustment

7.1 Principle of adjustment

Adopts patented technology six shift card thickness adjustment. Six shift cam wheel on the stacker machine can adjust card space through distance difference between each face and center point.

7.2 Adjust method

Rotate the card space adjustment button according to the indication on the six shift cam wheel.

7.3 Six shifts explanation

According to card dispensing principle, card space should be larger than thickness of one card and smaller than that of two cards. E.g. Card thickness is X, card space is Y, then X<Y<2X.

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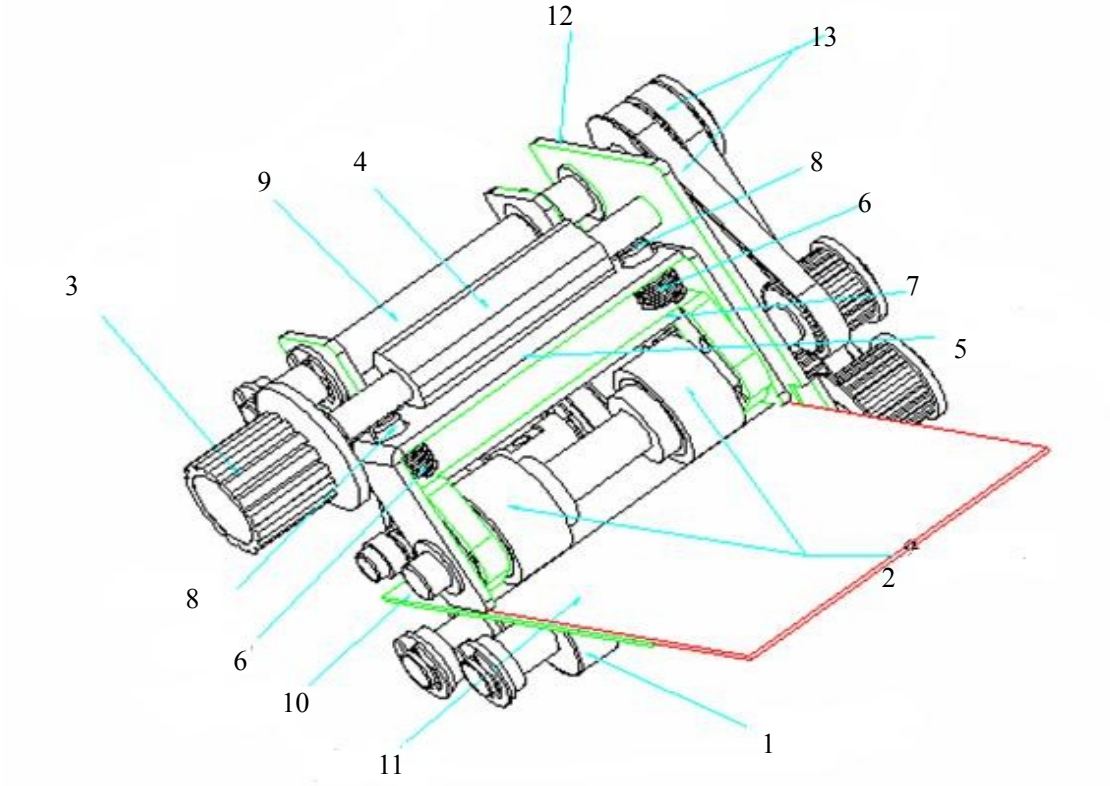
Card space	Card thickness
0.3mm	Above 0.15mm below 0.25mm
0.5mm	Above 0.25mm below 0.4mm
0.7mm	Above 0.4mm below 0.65mm
1.2mm	Above 0.65mm below 1.0mm
1.5mm	Above 1.0mm below 1.3mm
2.2mm	Above 1.3mm below 2.0mm

Card space adjustment drawing



1. Card space down wheel

2. Card space up wheel

3. Adjustment rotating button

4. Cam wheel shaft

5. Card space adjusting plate

6.Spring

7. Card space baffle plate

8.Spring column

9. Rotator

10 issued card

11. Retrieved card

12. Right side board

13. Belt

VIII Maintenance and caution

8.1 Daily maintenance

After card dispenser uses long period or dispenses a certain quantities of card, some part will have great abrasion through long time operation. Then it is necessary to maintain card dispenser. The procedure is as below:

1）Check if parts of card dispenser are loose or abnormal. If so, please fasten or repair immediately.

2）Check if the belts are loose. If so, please adjust the position of wheel.

3）Use cleaning card or soft cloth dipped with alcohol to clean up wheels at the bottom of card cabinet.

4）Pick out cards with greasy surface and distorted cards. Use soft cloth dipped with alcohol to clean cards with greasy surface. If distorted cards cannot be repaired, you need to change cards.

8.2 Caution

1）When opening host machine or cabinet to repair, power connected with card dispenser must be shut off to avoid damage machine.

2）Be careful of the difference of power positive and negative in the first power-on.

3）Notice the jumping line explanation in the first use. Wrong jumping line may cause machine unable to work or uncertain status.

4）Forbid hot-plugging connecting socket in the port. Hot-plugging is easy to damage control circuit.

5）Keep card dispenser clean, no oil. Greasy binder may damage the performance of card dispenser greatly.

6）There is a red hand-operated soft reset button at the rear down position of card dispenser body side. Field operator can adjust by hand when there is error or abnormal condition in the field operation. In normal condition please do not use it.

7）Resetting button can be used to sort cards in stacker and reclaim cards hand-operated.

8）Resetting button has overtime protection. Hold and press the button, motor will stop operating automatically to protect motor.

IX Warranty

1）Our products have one year free warranty. Warranty period starts from the date that users receive products.

2）Repairing method is that users send products to our factory for repairing.

3）After the warranty period, our company will still provide after sale service. In case it is involved with replacing parts, our company will charge a certain material cost. But for the below condition even in the warranty our company will charge a certain repairing fee in repairing.

a) Damage or trouble caused by human error after purchase;

b) Damage or trouble caused by operation of unprofessional technician;

c) Damage or trouble caused by unstable outer power or voltage;

d) Trouble and damage caused by force majeure such as earthquake etc.

X、K720 install drawing